

MECHANICAL DESIGN ENGINEERING TECHNOLOGY (MDET)

MDET-110 SolidWorks Basic

4 Credits

Lecture: 2 hours per week, **Lab:** 4 hours per week

Offering: Fall Only, All Years

This course is an introduction to SolidWorks Basics and presents fundamental principles toward feature-based parametric modeling and design. Emphasis will be on using basic tools toward the creation of parts, assemblies, and drawings.

MDET-115 Basic Mechanical Design

4 Credits

Lecture: 2 hours per week, **Lab:** 4 hours per week

Offering: Spring Only, All Years

This course will focus on learning contemporary documentary procedures for mechanical working drawings in accordance with ASME Y-14.5 standards. Students will use CAD software as a design platform. Concentrated efforts will be made to stress the importance of accuracy and clarity in mechanical working drawings, procedures, and practices. Emphasis will also be placed on developing confidence and proficiency in the development of contemporary working drawings. In the lecture/lab environment students will be presented with hands-on assignments/projects to reinforce learning outcomes.

Prerequisites: MDET-110

MDET-120 Intermediate SolidWorks

3 Credits

Lecture: 2 hours per week, **Lab:** 2 hours per week

Offering: Spring Only, All Years

This course will focus on learning intermediate skillsets with SolidWorks as a mechanical design and engineering platform. In the lecture/lab environment, students will work from textbook chapter problems, related exercises, and instructor handouts to reinforce the subject matter. This course will prepare the student for the MDET-230, Advanced Mechanical Design.

Prerequisites: MDET-110

MDET-210 Advanced SolidWorks Techniques

3 Credits

Lecture: 1 hour per week, **Lab:** 4 hours per week

Offering: Fall Only, All Years

This course will focus on learning advanced SolidWorks skillsets as a mechanical design and engineering platform. In the lecture/lab environment, students will work from textbook chapter tutorials, related exercises, and instructor handouts to reinforce the subject matter. This course will prepare the student for the MDET-230, Advanced Mechanical Design.

Prerequisites: MDET-120

MDET-215 Industrial Process

3 Credits

Lecture: 3 hours per week

Offering: Fall Only, All Years

This course introduces the product cycle theory in regards to Machine Control Processes via CAD/CAM/CAE methodology. This is an exploratory/hands-on learning environment and students will be engaged in visiting local industries to gain an understanding of industrial processes and their role in the product cycle process. Students will be introduced to rapid-prototyping and produce rapid-prototype parts.

MDET-220 Geometric Dimension and Tolerancing

3 Credits

Lecture: 3 hours per week

Offering: Fall Only, All Years

This course builds on the knowledge learned in MDET-115. This course will focus on geometric dimensioning and tolerancing principles and standards as they relate to working drawings. Topics include, but are not limited to, symbols, datum selection, feature control frames, and related tolerances. Students will learn to interpret and apply geometric dimensioning and tolerancing standards to drawings.

Prerequisites: MDET-115

MDET-225 Machines and Mechanisms

3 Credits

Lecture: 3 hours per week

Offering: Spring Only, All Years

This course is an introduction to kinematic analysis of mechanical mechanisms and the transmission of power. Using selected CAD programs, students will gain understanding of linkages, gears, cams, belts, and chain systems.

Prerequisites: MDET-215, MCTE-105 or an appropriate score on a placement test.

Corequisites: MDET-230

MDET-230 Advanced Mechanical Design

4 Credits

Lecture: 2 hours per week, **Lab:** 4 hours per week

Offering: Spring Only, All Years

This course places emphasis on learning more advanced Solidworks techniques as well as demonstrating design and engineering skillsets as developed throughout the Mechanical Design Engineering Technology program. Students will continue to learn advanced Solid Modeling techniques while working on their final project. Students choose their own final project to do and if the costs go over the students fees, it will be at their own expense.

Prerequisites: MDET-115, MDET-120, MDET-210

MDET-235 Statics and Strength of Materials

3 Credits

Lecture: 3 hours per week

Offering: Spring Only, All Years

This course introduces the basics of statics and strengths of materials without calculus. Students will study stress and strength factors of rigid bodies toward practical mechanical design problems. A good understanding of algebra and trigonometry, along with a knowledge of Microsoft Excel and CAD systems, are recommended to solve a variety of problems.

Prerequisites: MCTE-105 or an appropriate score on a placement test.